CLAIMS

1. A two-stage amplifier that provides a two-stage amplifier output signal, said two-stage amplifier comprising:

a first amplifier stage that receives a first amplifier input signal, and provides a first amplifier output signal;

a second amplifier stage that includes a second amplifier input lead, and provides the two-stage amplifier output signal;

a coupling capacitor having a first lead and a second lead, wherein said first lead receives said first amplifier output signal, and said second lead is connected to said second amplifier input lead such that said coupling capacitor is connected in series between said first and second amplifier stages; and

a charge pump that generates a bias voltage that is applied said coupling capacitor via said first and second leads to maintain the time average of the voltage across said coupling capacitor constant.

2. The two-stage amplifier of claim 1, comprising an integrated voltage source that provides a reference voltage to said charge pump.

3. The two-stage amplifier of claim 2, wherein said charge pump includes means for generating said bias voltage to maintain a fixed ratio between said reference voltage and said first amplifier input signal.

4. The two-stage amplifier of 1, wherein said first stage includes a transconductance amplifier.

5. The two-stage amplifier of claim 4, comprising a compensation capacitor that is connected electrically parallel to the input of said second amplifier stage.

6. The two-stage amplifier of claim 4, wherein said charge pump comprises:

a pump generator that is responsive to said reference signal and a clock signal, and provides a first clock pulse on a first pump generator output lead and a second pump clock pulse on a second pump generator output lead;

a first capacitor having a third lead and a fourth lead, wherein said third lead is connected to said first pump generator output lead;

a second capacitor having a fifth lead and a sixth lead, wherein said fifth lead is connected to said second pump generator output lead; and

a switching element that is coupled to said fourth lead and said sixth lead and provides a first pump current to said first lead and a second pump current to said second lead.

7. The two-stage amplifier of claim 5, wherein the value of said coupling capacitor is less than the value of said compensation capacitor.